READING IN ALGEBRA

1) no: 21 is not prime 2) yes 3) no: cf of 2 4) yes
5) no: cf of x 6) yes 7) no: can factor 8) no: diff of sq

ORAL EXERCISES

1. GCF = $6x$ 2. GCF = $\pm 10x$ 3. GCF = x^2
4. GCF = $6y$ 5. GCF = $\pm 5x^2$ 6. GCF = $(5a-3b)$
7. $-(5a-3b)$ 8. $-(2x^2+7y)$ 9. $-(y^2-y+12)$

WRITTEN EXERCISES

(A) 1. $3(4n^2-3n-1)$
$3(4n+1)(n-1)$

2. $a^2(3a^2-8a+1)$

3. $3x^2-21x+36$
$3(x^2-7x+12)$
$3(x-3)(x-4)$

4. $2(n^2+2n-15)$
$2(n+5)(n-3)$

5. $4(4y^2-1)$
$4(2y+1)(2y-1)$

6. $2(9c^2-25)$
$2(3c+5)(3c-5)$

7. $4(n^2+10n+25)$
$4(n+5)(n+5)$

8. $5(x^2-8x+16)$
$5(x-4)(x-4)$

9. $(y^2+2)(y^2-9)$
$(y^2+2)(y+3)(y-3)$

10. $(2a^2-1)(a^2-4)$
$(2a^2-1)(a+2)(a-2)$

11. $-(x^2-8x+16)$
$-(x-4)(x-4)$

12. $-(y^2-36)$
$-(y+6)(y-6)$

13. $3(y^3+27)$
$3(y+3)(y^2-3y+9)$

14. $5(n^3-125)$
$5(n-5)(n^2+5n+25)$

15. $4x(2y+5)+3(2y+5)$
$(4x+3)(2y+5)$

16. $3c(2d-7)-5(2d-7)$
$(3c-5)(2d-7)$

17. $-(4n^2-4n-3)$
$-(2n-3)(2n+1)$

18. $-(9t^2-30t+25)$
$-(3t-5)(3t-5)$

(B)

19. $x^2(x+4)+6(x+4)$
$(x^2+6)(x+4)$

20. $2a^2(3a+10)-7(3a+10)$
$(2a^2-7)(3a+10)$

21. $15x^2y^3(5y^2-2xy+3x^2)$

22. $4x^2y^2z^3(11xz-25yz-16xy)$

23. $4a(2a^2-a-10)$

24. $3a(a^2-25b^2)$
$3a(a+5b)(a-5b)$

25. $2xy(x^2-2x+1)$
$2xy(x-1)(x-1)$

26. $4ab(9a^2+30ab+25b^2)$
$4ab(3a+5b)(3a+5b)$

27. $(9x^2-16)(x^2+1)$
$(3x+4)(3x-4)(x^2+1)$

28. $(4n^2-9)(n^2-2)$
$(2n+3)(2n-3)(n^2-2)$

29. $(n^2-9)(n^2-4)$
$(n+3)(n-3)(n+2)(n-2)$

30. $(25y^2-1)(y^2-4)$
$(5y+1)(5y-1)(y+2)(y-2)$

31. $-3(y^2-9)$
$-3(y+3)(y-3)$

32. $-2(9x^2-16)$
$-2(3x+4)(3x-4)$

33. $-a(4c^2+4c+1)$
$-a(2c+1)(2c+1)$

34. $-x(x^2-6xy+9y^2)$
$-x(x-3y)(x-3y)$

35. $3(8x^3-125)$
$3(2x-5)(4x^2+10x+25)$

36. $-2(27y^3+64)$
$-2(3y+4)(9y^2-12y+16)$

37. $y(y^3+64)$
$y(y+4)(y^2+4y+16)$

38. $3x(x^3-1000)$
$3x(x-10)(x^2+10x+100)$

39. $3a(4b-3c)-7d(4b-3c)$
$(3a-7d)(4b-3c)$

40. $2x^2(4x+3)-5y(4x+3)$
$(2x^2-5)(4x+3)$

P(3) key

41. $a^2(a-b)-ab^2(a-b)$
$a(a-b)(a-b)$

42. $4c^2(c+2d)-4d^2(c+2d)$
$4(c^2-d^2)(c+2d)$
$4(c+d)(c-d)(c+2d)$

43. $(4y^4-9)(y^4-1)$
$(2y^2+3)(2y^2-3)(y^2+1)(y+1)(y-1)$

44. $(9x^4-1)(4x^4-1)$
$(3x^2+1)(3x^2-1)(2x^2+1)(2x^2-1)$

(c) 45. $x^4(x^{a+2}+1)$

46. $x^{4c}(x^c-1)$

47. $y^{n+4}(y+1)$

48. $x^{3c}(x^{2c}-9)$
$x^{3c}(x^c+3)(x^c-3)$

49. $x^2(x^{4n}+6x^{2n}+9)$
$x^2(x^{2n}+3)(x^{2n}+3)$

50. $y^n(y^{3n}-1)$
$y^n(y^n-1)(y^{2n}+y+1)$

51. x^6-y^6
$(x^3+y^3)(x^3-y^3)$
$(x+y)(x^2-xy+x^2y^2)(x-y)(x^2+xy+x^2y^2)$

52) x^6-y^6
$(x^2-y^2)(x^4+x^2y^2+y^4)$
$(x+y)(x-y)(x^4+x^2y^2+y^4)$

Extra credit.

53. both have factors of $(x+y)(x-y)$
Prove $(x^2-xy+x^2y^2)(x^2+xy+x^2y^2)=(x^4+x^2y^2+y^4)$
Imulti →